UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,463	08/15/2001	Daniel G Waddington	36-1489	2416

7590 12/21/2004	EXAMINER
Nixon & Vanderhye 8th Floor 1100 North Glebe Road Arlington, VA 22201-4714	TANG, KENNETH

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/913,463	WADDINGTON, DANIEL G
	Examiner	Art Unit	
	Kenneth Tang	2127	.

-- Th MAILING DATE of this communication appears on th cover sheet with the correspond nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>9/18/01</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-14</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/15/01</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-14 are presented for examination.

Claim Objections

2.   In claim 14, a period should be inserted at the end of line 11.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention:

a.   In claim 1, "scheduling" (line 10) is indefinite because it is not made explicitly

clear whether this refers to "a first process" (line 5) or a "second process" (line 8). There

is no established relationship made between these terms.

b.   In claim 1, "a reservation method" (line 17) is indefinite because it is not made

explicitly clear in the claim language whether this refers to "a method or methods for

making reservations" (lines 13-14) or if a new reservation method is being introduced.

c.   In claim 5, "merging the reservation-request pattern with a one-dimensional CPU

access control pattern" is indefinite because it is not made explicitly clear whether this

merging is done on a 1:1 mapping of the elements in the two array or if one array is

appended to the other, for example. It is unclear in the claim language of the merging.

d.   The term "substantially" in claims 5 and 13 is a relative term which renders the

claim indefinite. The term "substantially" is not defined by the claim, the specification

does not provide a standard for ascertaining the requisite degree, and one of ordinary skill

in the art would not be reasonably apprised of the scope of the invention.

e.   In claim 9, "the pattern element" (line 28) is indefinite because it is not made

explicitly clear in the claim language whether or not this refers to "the next pattern

element" (line 26) or not.

f.   Claim 9 recites the limitation "the pattern element" in line 28. There is

insufficient antecedent basis for this limitation in the claim.

g.   Claims 13 and 14 are rejected for the same indefinite reasons as stated in the

rejection of claim 1 above.

h.   In claims 15 and 16, it is unclear whether the claims are independent or dependent

claims. As is, system and computer code claims should not depend from method claims.

Claims 15 and 16 are required to be put into independent form.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   **Claims 1-4, 12, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable**

over Baugher et al. (hereinafter Baugher) in view of Jones et al. (hereinafter Jones) (US

6,584,489 B1).

4.   As to claim 1, Baugher teaches a method of administering resource utilization in a

computer, the method comprising the steps of:

· running a first process lo make a reservation f or access to a resource dependence on a

resource requirement communication from an application process *(col. 2, lines 11-16, col. 9,*

lines 66-67 through col. 10, lines 1-8);

running a second process to grant requests for access to said resource from said

application process in dependence on said reservation *(col. 3, lines 22-25, col. 6, lines 61-64, col.*

9, lines 66-67 through col. 10, lines 1-8);

having a method or methods for processing reservation requests for a plurality of

resources and initiating resource specific reservation processing *(col. 9, lines 66-67 through col.*

10, lines 1-8);

creating a reservation means (resource reservation system) having a method or methods f

or making reservations for access to a resource *(col. 9, lines 66-67 through col. 10, lines 1-8)*;

said application process calling a method, said method taking a first resource access

requirement definition as a parameter *(col. 6, lines 66-67 through col. 7, lines 1-8)*;

calling a reservation method of the reservation means to make reservation for said

application process, the reservation method taking a second resource access requirement

definition as a parameter *(col. 6, lines 66-67 through col. 7, lines 1-8, col. 9, lines 66-67 through col. 10, lines 1-8)*;

      granting access to resource in dependence on the reservation made by the reservation means *(col. 9, lines 66-67 through col. 10, lines 1-8)*; and

      utilizing said resource for the purposes of said application process *(col. 9, lines 66-67 through col. 10, lines 1-8)*.

5.   Baugher fails to explicitly teach a scheduling means for the reservation system. However, Jones teaches using a scheduler for a reservation system to provide the benefit of resource management *(col. 5, lines 59-67 through col. 6, lines 1-5, col. 1, lines 31-65)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the feature of a scheduling means for a reservation system to the existing reservation system of Baugher in order to obtain the benefit described above.

6.   As to claim 2, Baugher teaches a method wherein said method of the scheduling means translates the first resource requirement definition into the second resource requirement definition *(col. 6, lines 66-67 through col. 7, lines 1-8, col. 9, lines 66-67 through col. 10, lines 1-8)*.

7.   As to claim 3, Baugher teaches wherein said resource is a CPU *(Fig. 2, 300 or 320 or 330)*.

8.   As to claim 4, Baugher teaches wherein said resource is a mass storage device *(Fig. 2,*

300 or 320 or 330).

9.   As to claim 12, it is rejected for the same reasons as stated in the rejection of claim 1. In

addition, Baugher teaches wherein pending processes populate queues having different priorities

and access is granted to the process identified in the pattern element when there is not a

populated process queue having a higher priority than the queue in which said process is present

(col. 5, lines 1-15).

10.   As to claim 15, it is rejected for the same reasons as stated in the rejection of claim 1.

11.   As to claim 16, it is rejected for the same reasons as stated in the rejection of claim 1.

12.   **Claims 5-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Papworth et al. (hereinafter Papworth) (US 5,778,245).

13.   As to claim 5, Papworth teaches a method of scheduling access to a CPU, the method

comprising the steps of:

        generating a one-dimensional (array) reservation request pattern (reservation information

in data array) *(col. 16, lines 2-7, col. 5, lines 8-11)*; and

merging the reservation request pattern with a one-dimensional CPU access control

pattern (merging into reservation station), representing empty CPU access time slots (not

reserved) and reserved CPU access time slots *(col. 14, lines 41-67, col. 16, lines 2-7, col. 5, lines*

8-11).

14.   Papworth fails to explicitly teach not substantially disturbing either the reservation

request pattern or the reserved CPU access time slots in the reservation request pattern.

However, it would have been obvious to one of ordinary skill in the art to not substantially

disturb either the reservation request pattern or the reserved CPU access time slots in the

reservation request pattern because disturbing would corrupt the pattern.

15.   As to claim 6, Papworth teaches wherein said merging step comprises relocating a non-

empty time slot element of the reservation request pattern or the CPU access control pattern such

that the patterns can be merged without any reserved CPU access time slot elements being

deleted or overwritten *(e.g., col. 14, lines 41-67, col. 16, lines 2-7, col. 5, lines 8-11, and see the*

rejection of claim 5).

As to claim 7, Papworth teaches wherein the relocated non-empty time slot element is relocated

by an amount defined in said time slot element *(e.g., see claims 16 and 17).*

16.   As to claim 9, it is rejected for the same reasons as stated in the rejection of claim 5. In

addition, Papworth a quantum of CPU access time (time period) and at the end of a quantum of

CPU access time (time period):

Granting access to any pending processes having a priority greater than a predetermined

level *(col. 8, lines 54-58, col. 33, lines 1-14)*; and then

If the next pattern element is empty then granting access to a pending process (first valid

entry or the next valid entry) meeting a predetermined prioritization criterion else granting access

to a process identified in the pattern element *(col. 8, lines 54-58, col. 33, lines 1-14)*.

17.   As to claim 10, Papworth teaches wherein pending processes populate queues having

different priorities and access is granted to the process identified in the pattern element when

there is not a populated process queue having a higher priority than the queue in which said

process is present *(col. 16, lines 1-15., col. 33, liens 1-14)*.

18.   As to claim 11, it is rejected for the same reasons as stated in the rejection of claim 5.

19.   **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baugher et al.**

(hereinafter Baugher) in view of Jones et al. (hereinafter Jones) (US 6,584,489 B1), as

applied to claim 1 above, and further in view of Papworth et al. (hereinafter Papworth) (US

5,778,245).

20.   As to claim 8, Baugher in view of Jones fails to explicitly teach wherein said first process

is a method comprising the steps of:

Generating a one-dimensional reservation request pattern; and

Merging the reservation request pattern with a one-dimensional CPU access control pattern, representing empty CPU access time slots and reserved CPU access time slots, without substantially disturbing either the reservation request pattern or the reserved CPU access time slots in the reservation request pattern.

21. However, Papworth teaches a method of scheduling access to a CPU, the method comprising the steps of:

generating a one-dimensional (array) reservation request pattern (reservation information in data array) *(col. 16, lines 2-7, col. 5, lines 8-11)*; and

merging the reservation request pattern with a one-dimensional CPU access control pattern (merging into reservation station), representing empty CPU access time slots (not reserved) and reserved CPU access time slots *(col. 14, lines 41-67, col. 16, lines 2-7, col. 5, lines 8-11)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the feature of generating a one-dimensional (array) reservation request pattern (reservation information in data array) and merging the reservation request pattern with a one-dimensional CPU access control pattern (merging into reservation station), representing empty CPU access time slots (not reserved) and reserved CPU access time slots to the existing resource reservation scheduling system of Baugher and Jones because this would increase resource use efficiency *(col. 2, lines 31-32)*.

In addition, Papworth fails to explicitly teach not substantially disturbing either the reservation request pattern or the reserved CPU access time slots in the reservation request pattern. However, it would have been obvious to one of ordinary skill in the art to not substantially

disturb either the reservation request pattern or the reserved CPU access time slots in the

reservation request pattern because disturbing would corrupt the pattern.

22.   **Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baugher et**

al. (hereinafter Baugher) in view of Nakahara et al. (hereinafter Nakahara) (US 6,253,225

B1).

23.   As to claim 13, Baugher teaches a method of administering resource utilisation in a

computer, the method comprising:

running a first process to make a reservation for access to a resource in dependence a

resource requirement communication from an application process *(col. 2, lines 11-16, col. 9,*

lines 66-67 through col. 10, lines 1-8); and

running a second process to grant requests for access to said resource from said

application process in dependence on said reservation *(col. 3, lines 22-25, col. 6, lines 61-64, col.*

9, lines 66-67 through col. 10, lines 1-8), wherein

said first process comprises allocating one or more resource tokens to said application

process in dependence on the second resource access requirement definition and the second

process performs a method comprising the steps of:

storing requests for access to mass storage device from application processes *(Fig.*

2, 300 or 320 or 330);

passing on to a mass storage device driver process the stored request for access from an

application process selected on the basis of a predetermined prioritisation criterion else

passing on to a mass storage device driver process a stored request for access from an

application process to which said identified resource token was allocated *(col. 5, lines 1-*

15, col. 6, lines 66-67 through col. 7, lines 1-8, col. 9, lines 66-67 through col. 10, lines

1-8, Fig. 4).

24.   Baugher fails to explicitly teach generating substantially randomly a resource token

identifier. However, Nakahara teaches generating a random number value to for creating or

making the identification information *(col. 19, lines 10-24).* It would have been obvious to one

of ordinary skill in the art at the time the invention was made to combine Nakahara's feature of

generating substantially randomly a resource token identifier to Baugher's resource utilization

system because having identifiers of a process and knowing the identifiers of the process is

needed in order to deallocate the resource occupied by the process *(col. 2, lines 62-64).*

25.   **Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baugher et**

al. (hereinafter Baugher) in view of Baugher et al. (hereinafter Baugher2) (US 5,640,595).

26.   As to claim 14, Baugher teaches a method of administering resource ulilisation in a

computer, the method comprising:

running a first process to make a reservation f or access to a resource in dependence on

resource requirement communication from application process *(col. 2, lines 11-16, col. 9, lines*

66-67 through col. 10, lines 1-8); and

running a second process to grant requests for access to said resource from said

application process in dependence on said reservation, wherein the first process determines a

weighting function associated with the application process *(col. 3, lines 22-25, col. 6, lines 61-*

64, col. 9, lines 66-67 through col. 10, lines 1-8);

the second process performs a method comprising the steps of:

(i) storing requests for access to mass storage device from application processes

(Fig. 2, 300 or 320 or 330);

passing on to a mass storage device driver process the stored request for access from the

selected application process, or passing on to a mass storage device driver process a stored

request for access from an application processselected on the basis of a predetermined

prioritisation criterion *(col. 5, lines 1-15, col. 6, lines 66-67 through col. 7, lines 1-8, col. 9, lines*

66-67 through col. 10, lines 1-8, Fig. 4).

Baugher fails to explicitly teach using a stochastic process by selecting an application

process with a probability determined by the weighting associated with the application process.

However, Baugher2 teaches using a stochastic (probability) process parameters for the benefit of

determining quality of service *(col. 7, lines 34-46)*. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the feature of using a

stochastic processes to Baugher's resource utilization reservation system to obtain the benefit of

determining the quality of service *(col. 7, lines 34-46)*.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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